

---

# 1. Introduction

This report presents the result of the water quality assessment performed by the U.S. Environmental Protection Agency (EPA) as part of its effort to develop effluent limitations guidelines and pretreatment standards for centralized waste treatment (CWT) facilities. EPA based effluent limitations guidelines and pretreatment standards upon the treatment technologies described below (see Table 1-1). The report also explains how EPA prepared its assessment.

**Table. 1-1. Technology Basis for Selected Options**

Metals Subcategory <sup>a</sup>		Oils Subcategory		Organics Subcategory
BPT / BCT /BAT / PSES / PSNS <sup>b</sup>	NSPS	BPT / BCT/BAT/ PSNS / NSPS	PSES	BPT / BCT / BAT / PSES /PSNS / NSPS
<b>Option 4:</b>  Precipitation, liquid solid separation, secondary precipitation and sand filtration (sand filters for directs only).	<b>Option 3:</b>  Selective metals precipitation, liquid-solid separation, secondary (sulfide) precipitation, liquid-solid tertiary precipitation, clarification.	<b>Option 9:</b>  Emulsion breaking, gravity separation, secondary gravity separation and dissolved air flotation	<b>Option 8:</b>  Emulsion breaking, gravity separation, and dissolved air flotation	<b>Option 4:</b>  Equalization, and biological treatment

a. For facilities in the cyanide subset of the metals subcategory, the technology basis is alkaline chlorination at specific operating conditions.

b. Direct dischargers are covered by BPT / BAT. Indirect dischargers are covered by PSES.

EPA estimated the potential effects on aquatic life and human health resulting from exposure to effluent discharges from centralized waste treatment (CWT) facilities and from publicly owned treatment works (POTWs) which receive and treat waste from CWT facilities and then discharge to surface waters. EPA has also used the results of this assessment in the final economic analysis of the final CWT effluent guidelines. This report first projects effects associated with current (baseline) conditions and then evaluates potential effects expected from adoption of the final limitations and standards. Evaluations of the environmental benefit of meeting the final limits and standards are then presented.

EPA recognizes that its estimation of benefits is probably incomplete. At the present time, EPA cannot evaluate in a quantitative manner all human health and ecosystem benefits associated with water quality improvements. For example, the analyses have considered the effects of certain toxic pollutants but do not evaluate the effects of other pollutants (such as five-day biochemical oxygen demand (BOD<sub>5</sub>), chemical oxygen demand (COD), and total suspended solids (TSS)), all of which may produce significant adverse environmental effects. Additionally, EPA has identified 205 CWT facilities, but because it lacks receiving stream flow information, EPA only modeled aquatic life and human health effects for 113 facilities.

With these limitations, EPA has analyzed the effects of current water discharges and assessed the benefits of reductions in these discharges resulting from this final rule. EPA evaluated water quality benefits of controlling the discharge from CWT facilities to surface waters and POTWs for direct and indirect dischargers located throughout the United States. CWT industry waste effluents contain pollutants that when discharged into freshwater and estuarine ecosystems may alter aquatic habitats, affect aquatic life, and adversely affect human health. In fact, all 104 pollutants included in this analysis (see Table 4-1) have at least one toxic effect. Each is a human health carcinogen and/or human health systemic toxicant or aquatic toxicant. Many of these pollutants are persistent and bioaccumulate in aquatic organisms. In addition,

many of these pollutants may also adversely affect POTW operations and/or cause POTW sludge contamination. These effects are widely documented. For example, State 304(l) lists detail adverse effects on aquatic life, human health, and POTW operations.

EPA has organized this report into five sections. Section 2 describes the methodology EPA used to evaluate water quality effects from direct and indirect discharging facilities and effects on POTW operations from indirect discharging facilities. Section 3 describes the data sources used for evaluating water quality effects such as facility-specific data, POTW operational data, water quality criteria, and documented environmental impact data. Section 4 presents a summary of the results of this analysis. Section 5 provides a complete list of references cited. Appendices A through C provide additional detail on the specific information addressed in the main report.